

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Amended) A method for etching a feature in an integrated circuit wafer incorporating at least one layer of organosilicate glass dielectric, the method comprising:

positioning the wafer in a reaction chamber;

introducing a flow of etchant gas mixture including C₄F₈, CH₂F₂, oxygen, and CF₄ into the reaction chamber;

striking a plasma with the etchant gas in the reaction chamber; and

etching the at least one layer of organosilicate glass with the plasma from the etchant gas.

2. (Cancelled).

3. (Cancelled).

4. (Previously Amended) The method, as recited in claim 1, wherein the etchant gas mixture further comprises argon.

5. (Previously Amended) The method, as recited in claim 4, wherein the at least one layer of organosilicate glass is a first layer of organosilicate glass dielectric, which is etched with the plasma from the etchant gas comprising C₄F₈, CF₄, CH₂F₂, oxygen and argon.

6. (Original) The method, as recited in claim 5, further comprising stopping the flow of CH₂F₂ and C₄F₈ in the etchant gas and using the resulting plasma to etch through an etch stop layer.

7. (Previously Amended) A method for etching a feature in an integrated circuit wafer, the method comprising:

positioning the wafer in a reaction chamber;

etching through a first layer of organosilicate glass dielectric, comprising:

providing a flow of an etchant gas mixture including C₄F₈, CH₂F₂, oxygen, and CF₄ into the reaction chamber; and

generating a plasma with the etchant gas in the reaction chamber.

8. (Cancelled).

9. (Cancelled).

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10. (Previously Amended) The method, as recited in claim 7, wherein the etchant gas mixture for etching through the first layer of organosilicate glass, further comprises argon.

11. (Previously Amended) The method, as recited in claim 10, further comprising etching through an etch stop layer, comprising:

providing an etchant gas mixture without C₄F₈ and CH₂F₂ into the reaction chamber; and

generating a plasma with the etchant gas in the reaction chamber.

12. (Previously Amended) The method, as recited in claim 10, further comprising etching through an etch stop layer after etching through the first layer of organosilicate glass, comprising:

stopping the flow of C₄F₈ and CH₂F₂ into the reaction chamber; and

generating a plasma with the etchant gas in the reaction chamber.

13. (Previously Amended) The method, as recited in claim 12, further comprising etching through a second layer of organosilicate glass dielectric, comprising:

restarting the flow of C₄F₈ and CH₂F₂ into the reaction chamber; and

generating a plasma with the etchant gas in the reaction chamber.

14. (Previously Amended) The method, as recited in claim 13, further comprising stripping a photoresist mask, comprising:

stopping the flow of C₄F₈ and CF₄ into the reaction chamber, after etching through the second layer of organosilicate glass;

providing a flow of nitrogen into the reaction chamber; and

generating a plasma with the etchant gas in the reaction chamber.

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15. (Original) An integrated circuit formed by the method comprising:

positioning a wafer in a reaction chamber;

etching through a first layer of organosilicate glass dielectric over the wafer, comprising:

providing a flow of an etchant gas mixture including C₄F₈ and CF₄ into the reaction chamber; and

generating a plasma with the etchant gas in the reaction chamber.

16. (Original) The integrated circuit, as recited in claim 15, wherein the etchant gas mixture for etching through the first layer of organosilicate glass, further comprises CH₂F₂, oxygen, and argon.

17. (Original) The integrated circuit, as recited in claim 16, wherein the method further comprises etching through an etch stop layer, comprising:

providing an etchant gas mixture without C₄F₈ and CF₄ into the reaction chamber; and

generating a plasma with the etchant gas in the reaction chamber.

18. (Original) The integrated circuit, as recited in claim 16, wherein the method further comprises etching through an etch stop layer after etching through the first layer of organosilicate glass, comprising:

stopping the flow of C₄F₈ and CF₄ into the reaction chamber; and
generating a plasma with the resulting etchant gas in the reaction chamber.

19. (Cancelled).

20. (Previously Added) The method, as recited in claim 12, further comprising stripping a photoresist mask, comprising:

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stopping the flow of C₄F₈ and CF₄ into the reaction chamber, after etching through the etch stop layer;
providing a flow of nitrogen into the reaction chamber; and
generating a plasma in the reaction chamber.

21. (Previously Added) The method, as recited in claim 6, further comprising stripping a photoresist mask, comprising:

stopping the flow of C₄F₈ and CF₄ into the reaction chamber, after etching through the etch stop layer;
providing a flow of nitrogen into the reaction chamber; and
generating a plasma in the reaction chamber.
